

# *Green Design for Preservation and Revitalization*

*Milford Wayne Donaldson, FAIA, LEED AP  
California State Historic Preservation Officer*

*California Downtown Association  
2008 Annual Conference*

*Santa Rosa, California  
October 1-3, 2008*



**“Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.”**

## **WHAT IS SUSTAINABILITY?**

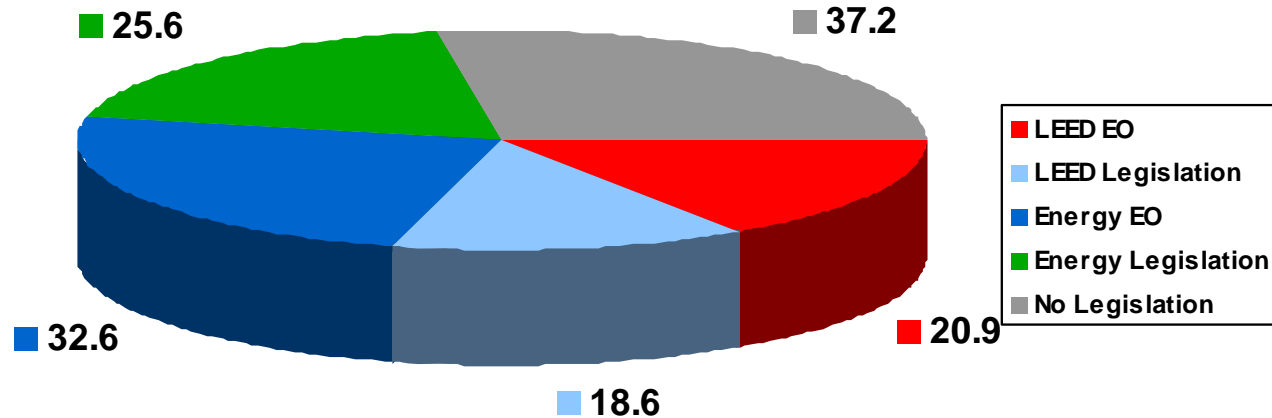
**Source: UN World Commission on Environment and Development, 1987,  
The Brundtland Report**

# Sustainable Preservation Coalition

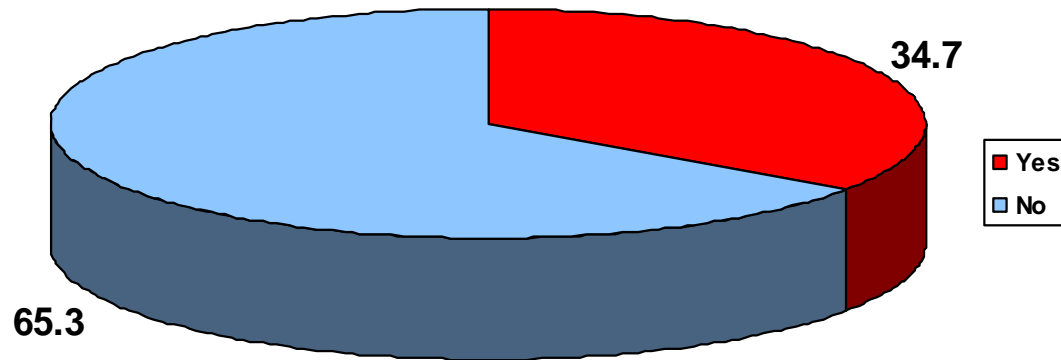
**Working together on integration  
of preservation values into the  
revised version of LEED.**



# NCSHPO Green Preservation Survey

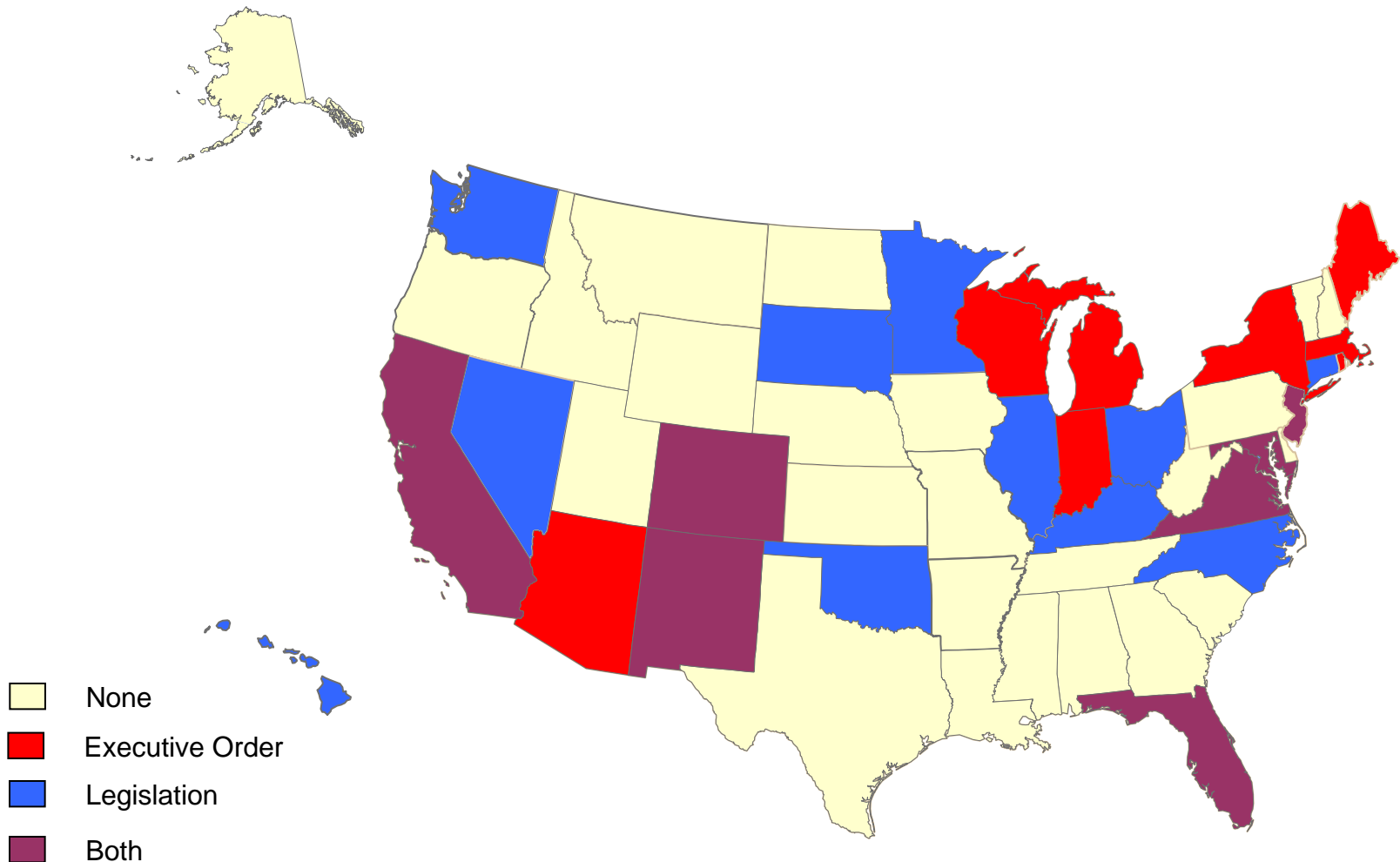


**Does your state have an Executive Order or legislation including improved energy efficiency standards or LEED certification for existing state-owned buildings?**



**Is your office aware of sustainable mandates by your state and local jurisdictional authorities that adversely affect historic preservation?**

# Green Legislation by State (2008)



# CALIFORNIA LOCAL GOVERNMENT MEMBERS OF USGBC in March 2007

Alameda County Waste Management

**City of Alameda**

**City of Berkeley**

City of Beverly Hills

City of Burbank/ Building Division City of  
Calabasas

City of Claremont

City of Costa Mesa Development Services

City of Emeryville

**City of Encinitas**

**City of Fremont**

City of Huntington Beach

City of Irvine

**City of Livermore**

City of Long Beach

City of Los Angeles

City of Lynwood

**City of Monterey**

**City of Oakland**

City of Palm Desert

City of Palo Alto

City of Pasadena

**City of Pleasanton**

City of Rohnert Park

City of Sacramento

**City of San Diego**

City of San Jose

City of San Leandro

City of Santa Barbara

City of Santa Monica

City of Santa Rosa Utilities Department

City of Santa Rosa

City of Sunnyvale

City of Ventura

County of Alameda

County of Sacramento

County of San Mateo Department of Building  
Inspection

Goleta Water District

Los Angeles County

Port of Oakland

Port of San Diego

SF Bay Area Rapid Transit District

Cities in **red** are Main Street Communities

# CALIFORNIA LOCAL GOVERNMENT MEMBERS OF USGBC added by March 2008

**City of Salinas**

City and County of San Francisco

City of Lodi

City of Rocklin

City of Seaside

City of Thousand Oaks

Consumnes Community Services District

Barona Band of Mission Indians

Central Contra Costa Sanitary District

Centre City Development Corporation

Los Angeles Convention Center

Los Angeles World Airports

Monterey Regional Waste Management District

Ontario Redevelopment Agency

Palm Desert Redevelopment Agency

## 37% increase in one year

Cities in **green** are Certified Local Governments

Cities in **red** are Main Street Communities

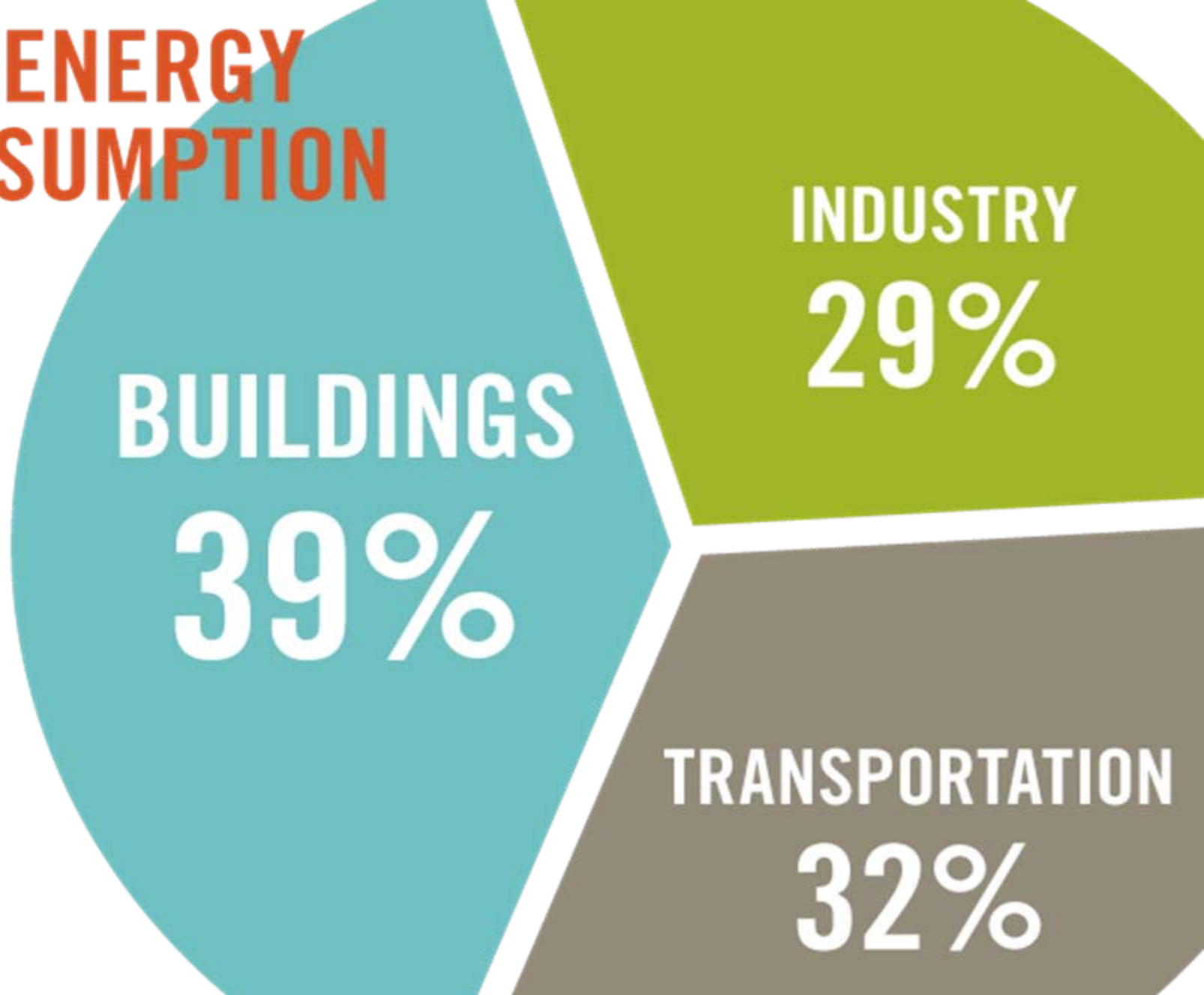


**WHY ARE HISTORIC & EXISTING BUILDINGS  
IMPORTANT?**

**BUILDINGS ACCOUNT FOR ALMOST HALF OF  
GREENHOUSE GAS EMISSIONS IN THE UNITED STATES**



# U.S. ENERGY CONSUMPTION





**MAKE THE CASE FOR PRESERVATION  
AS INHERENTLY SUSTAINABLE  
DEVELOPMENT & CRUCIAL TO  
CONTROLLING CLIMATE CHANGE**



## GOALS- PROMOTE

1. Building Reuse
2. Reinvestment in Older & Historic Communities
3. Retrofit the Existing Building Stock





## **REINVEST IN OLDER & HISTORIC COMMUNITIES**

- 1. Preserves Embodied Energy & Avoids**
- 2. Reduces Demand for New Infrastructure**



## **GREEN THE EXISTING BUILDING STOCK**

- 1. Traditional Historic Buildings were built to last**
- 2. Many are already Energy Efficient**

# Levels of LEED Ratings

Green Buildings  
worldwide are certified  
with a voluntary,  
consensus-based

USGBC has four  
levels of LEED.





## Average Savings of Green Buildings



The infographic consists of four vertical panels, each with a background image and a large white arrow pointing downwards. The first panel (orange) features a wind turbine and states 'ENERGY SAVINGS 30%'. The second panel (blue with clouds) states 'CARBON SAVINGS 35%'. The third panel (blue with a glass of water) states 'WATER USE SAVINGS 30-50%'. The fourth panel (blue with a recycling symbol) states 'WASTE COST SAVINGS 50-90%'. The USGBC logo is in the bottom left corner.

**ENERGY  
SAVINGS**  
**30%**

**CARBON  
SAVINGS**  
**35%**

**WATER  
USE  
SAVINGS**  
**30-50%**

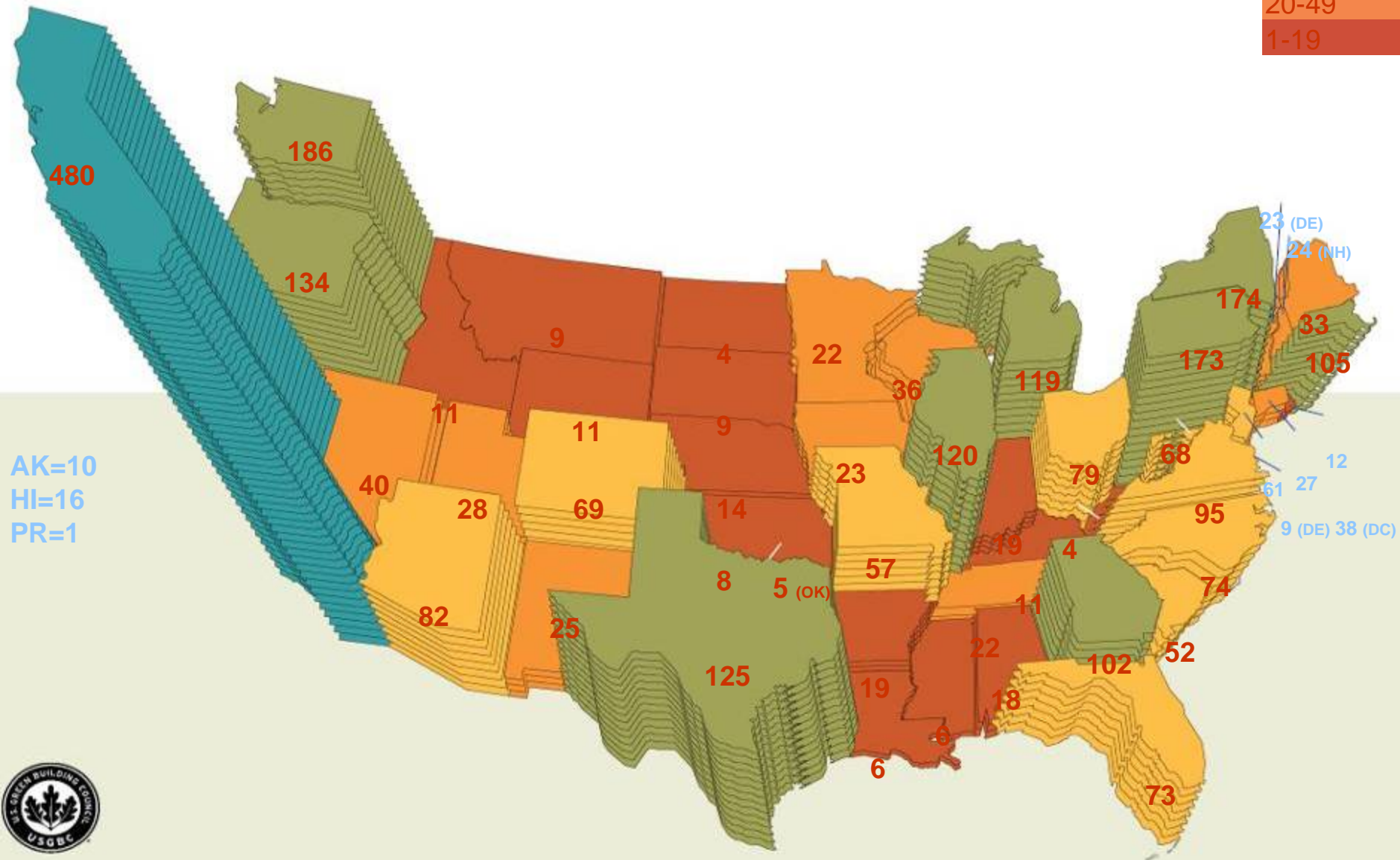
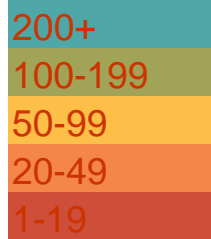
**WASTE  
COST  
SAVINGS**  
**50-90%**



# LEED for new construction buildings

as of 07/06

Distribution  
by geography

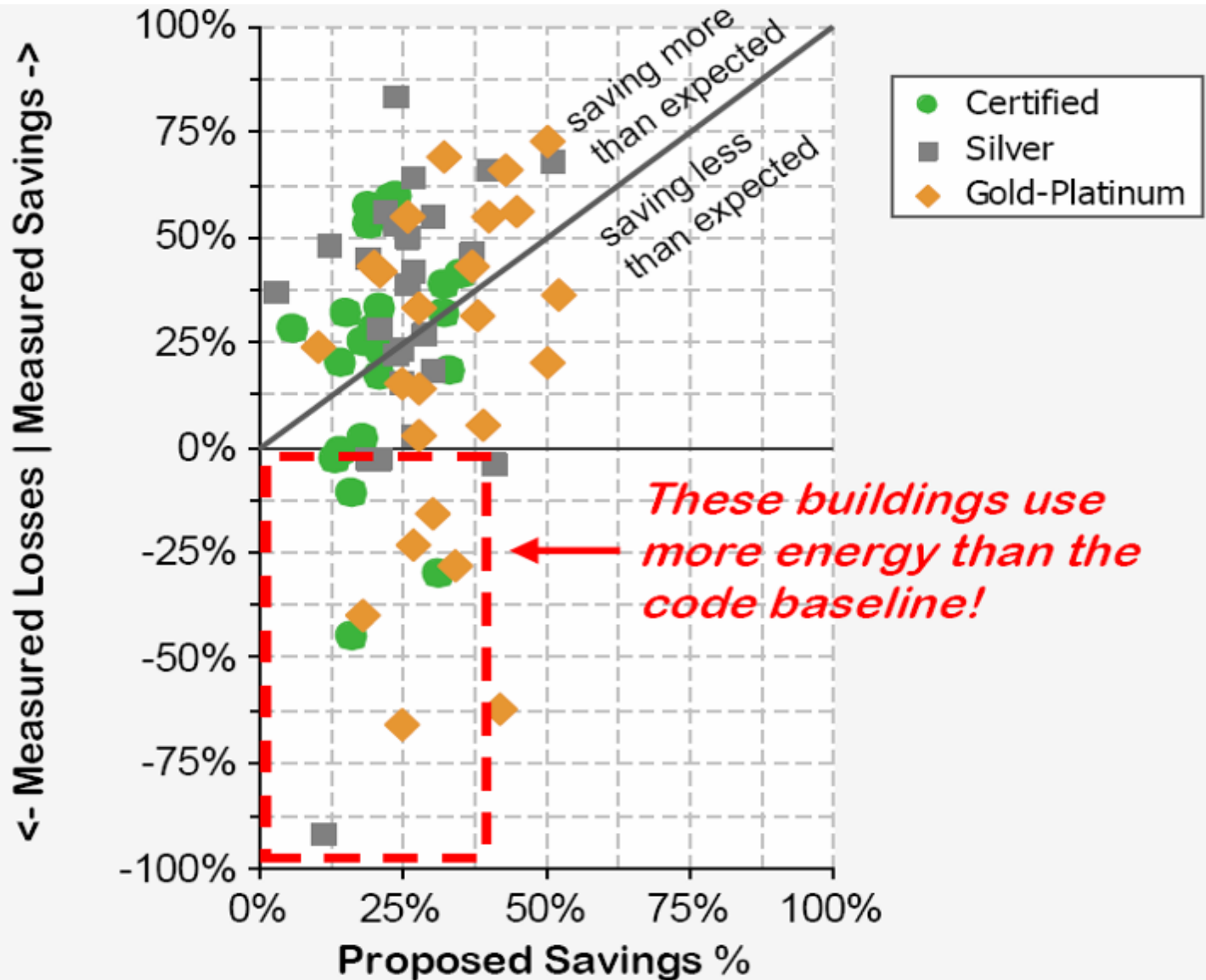




# Energy Performance of LEED® for New Construction Buildings



FINAL REPORT  
March 4, 2008

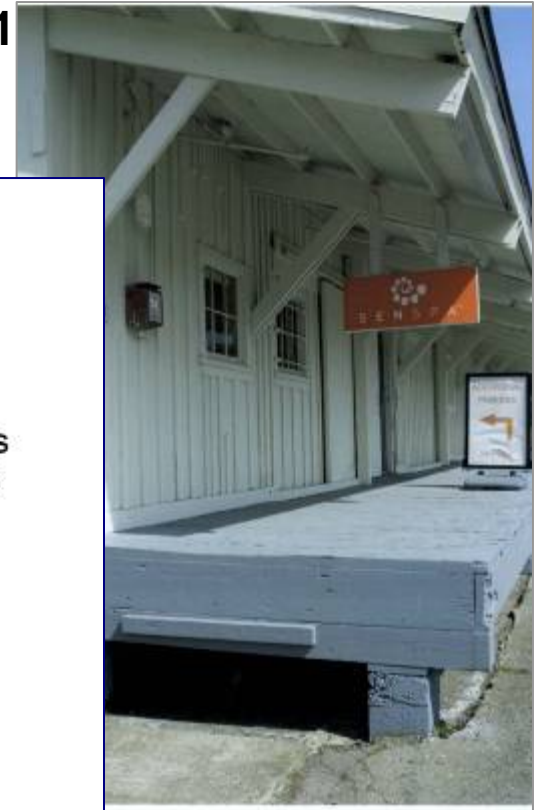


# The Presidio

Building 35



Building 1161



## Green Building Guidelines for the Rehabilitation of Historic & Non-Historic Buildings

DRAFT as of 4/13/02



Thoreau Center for Sustainability

# Green Building Climate Calculator

## The GreenPoint Rated Climate Calculator

June 2008



“Green remodeling reduces net CO<sub>2</sub>e emissions, while constructing new homes (whether green or conventional) increases net CO<sub>2</sub>e emissions. Given that 70% of homes in the state were built before 1980, the opportunity for true emissions reduction is enormous in the home remodeling sector.”

“But even though more savings per home are available to the new home sector, total emissions actually increase with each new home. When a new home is built that doesn’t replace an existing building, there is inevitably a net increase in GHG emissions because the construction has added another building to the state’s building stock.”

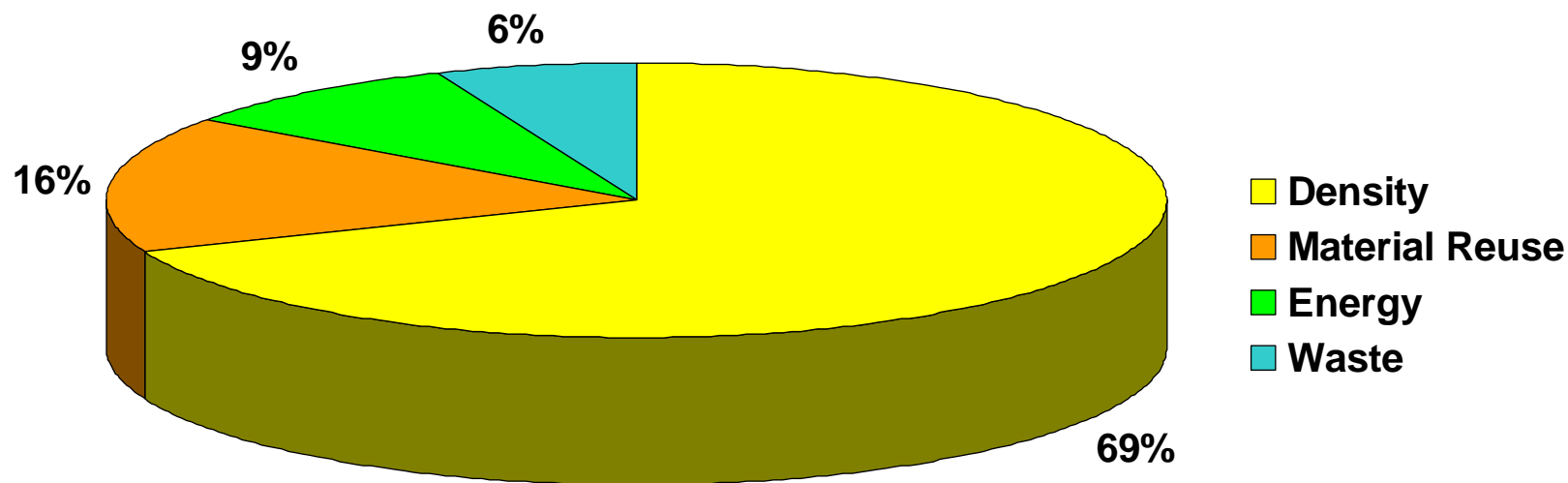
“While about 200,000 new homes are built each year, the existing housing stock makes up over 13 million homes .”

# Green Building Climate Calculator

Available at [http://stopwaste.org/docs/173915182008gpr\\_climate\\_calculator\\_report\\_june\\_2008.pdf](http://stopwaste.org/docs/173915182008gpr_climate_calculator_report_june_2008.pdf)

## Impact of selected parameters on CO2 emissions

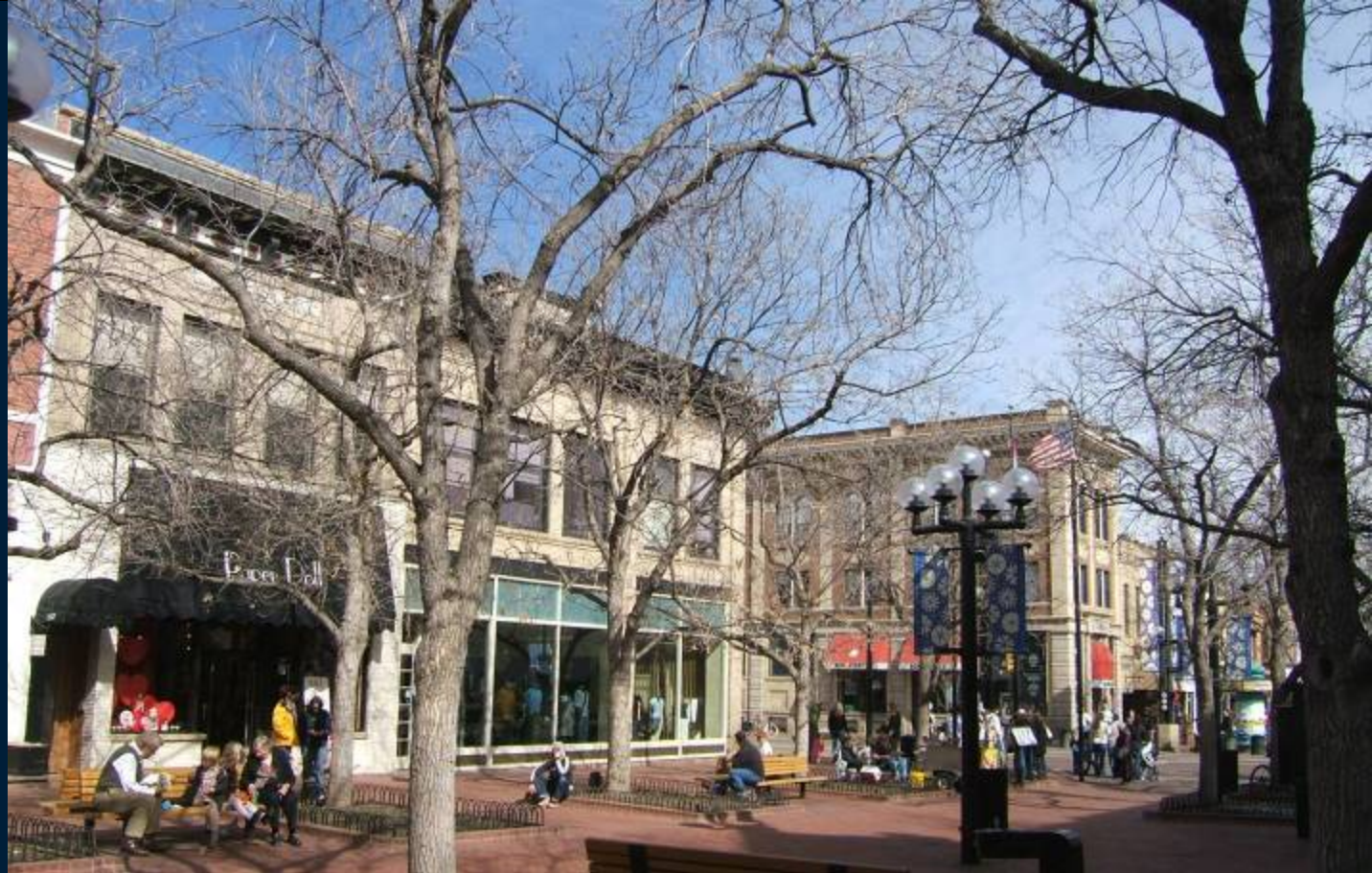
Developed by StopWaste.org



Based on four case studies in report.

Embodied energy is difficult to model and is still under development.



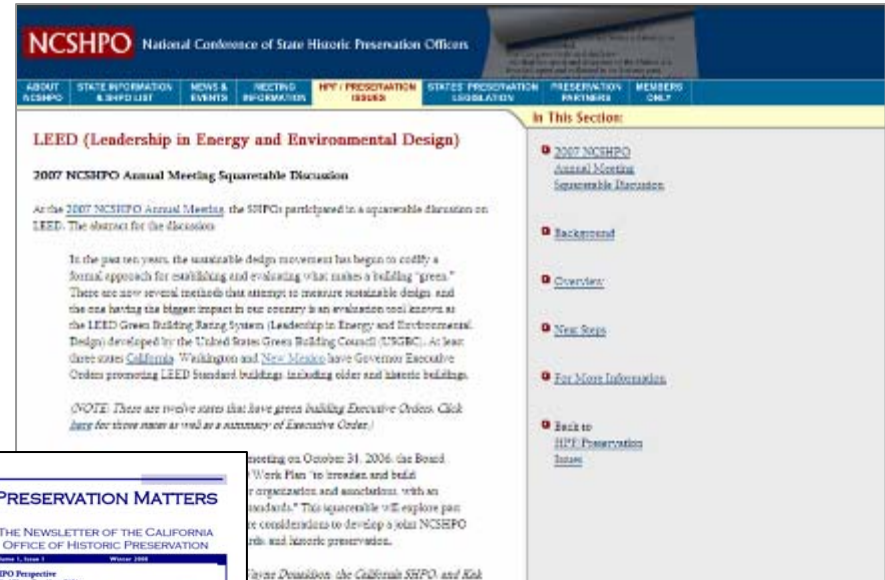


## DENSITY

Places like Boulder are town-centered, transit and pedestrian oriented, have a greater mix of housing, commercial and retail uses and preserve open spaces.

# A State Approach: Sustainability Best Practices

- Keep sustainable goals within preservation visible
  - on SHPO website
  - In newsletters
  - At staff meetings
  - At other state agency meetings
  - With elected representatives



meeting on October 31, 2006, the Board "Work Plan" to broaden and build organization and structure, with an emphasis on "This sustainable will explore can be considered to develop a joint NCSHPO role and historic preservation."

Steve Davidson, the California SHPO, and Bob





French Quarter, New Orleans

## LEED ND (Neighborhood Development)

The LEED for Neighborhood Development Rating System integrates the principles of smart growth, urbanism and green building into the first national system for design.





WASHINGTON, DC

Green Building Act of 2006

Requires LEED compliance with municipal and private projects over 50,000 sq ft.





## SPRAWL

Historic preservation reduces sprawl.  
LEED ND - a collaboration among USGBC,  
the Congress for the New Urbanism and the  
Natural Resources Defense Council.



# HISTORIC REHABILITATION TAX CREDITS

THE CHRISTMAN BUILDING

Lansing, MI

The first dual LEED Platinum Project AND Tax Credit Project

California Building Performance  
Contractors Association



SOUTHERN CALIFORNIA  
**EDISON**

An EDISON INTERNATIONAL® Company



HOME PERFORMANCE WITH  
**ENERGY STAR**



*Pacific Gas and  
Electric Company*



Arctic Building, Seattle

## WHAT IS LIFE CYCLE ANALYSIS?

A methodology for assessing the environmental performance.

# Off-Site Energy Options

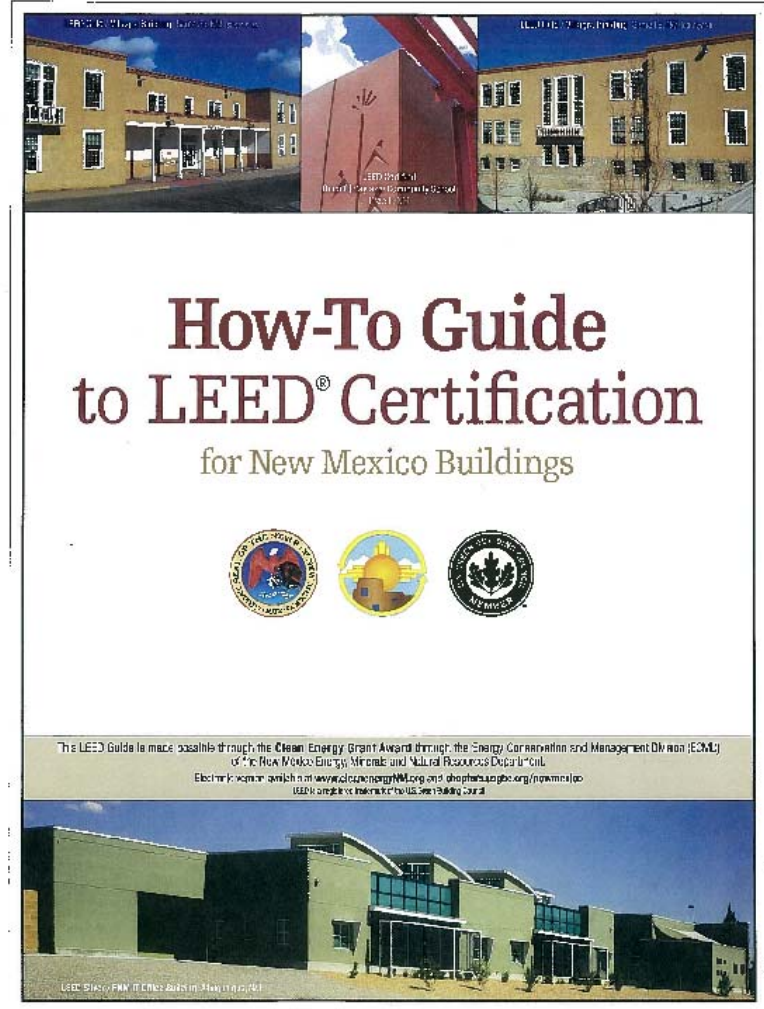
## SMUD solar shares

<http://www.smud.org/community-environment/solar/solarshares.html>



# A State Approach: Sustainability Best Practices

- **Develop State Guidelines**
  - **New Mexico Guidelines**







Old San Juan, Puerto Rico

## DURABILITY

Identify the relative durability of various materials, systems and assemblies and reward buildings whose components are more durable.

# RECO – Berkeley

## Residential Energy Conservation Ordinance

- Adopted in 1985 with the intent of increasing the energy and water efficiency in existing Berkeley residences. This long-standing goal contributes to the Berkeley Climate Action goal of reducing Berkeley's overall greenhouse gas emissions by 80% by the year 2050.
- **When does RECO apply?** RECO applies to all homes, residential areas of mixed-use buildings, tenants-in-common, condominiums, multi-family properties, live-work spaces and boarding houses
- **Renovation:** All homes or apartment buildings undergoing renovations with a combined permit value of \$50,000 or more **must** demonstrate compliance with RECO requirements
- **Sale or Transfer of Property:** All homes or apartment buildings, sold or transferred **must** demonstrate compliance with RECO requirements by being inspected and filing "Form A - Certificate of RECO Compliance" with the City of Berkeley.





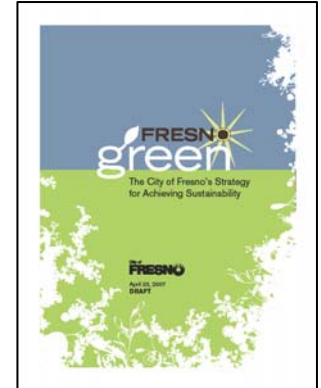
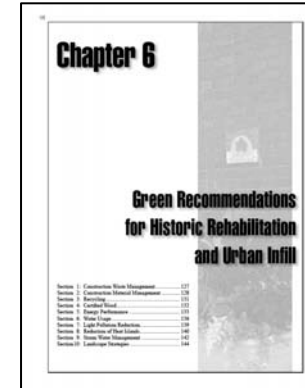
## SOCIAL CAPITAL

Recognize the importance of “social capital” associated with historic buildings and neighborhoods.

# A State Approach: Sustainability Best Practices

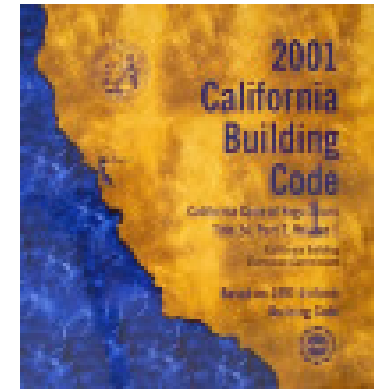
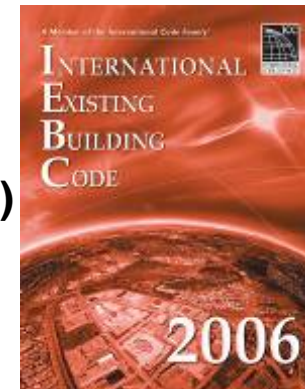
- **Develop model Local Standards**

- **Wabash Valley Chapter 6**
- **Fresno Green Guidelines**



- **Understand locally adopted Codes**

- **2006 International Existing Building Code (IEBC)**
- **2007 California State Historical Building Code**
- **Locally adopted Ordinances**



# A State Approach: Sustainability Best Practices

- **Become a resource in your state for technical information achieving sustainable goals within preservation**



The screenshot shows the website for the California Office of Historic Preservation, part of the California State Parks system. The header includes the CA.GOV logo and the text "Office of Historic Preservation CALIFORNIA STATE PARKS". A navigation bar contains links: State Parks, OHP Home, What's New, Workshops, CEQA, CHRIS, LEED (highlighted), THPO, and Land. Below this is a banner image of a historic building with the text "Office of Historic Preservation" overlaid. A sidebar on the left lists four categories with right-pointing arrows: GREEN PRESERVATION IN THE NEWS, LEGISLATION, POLICIES, ORDINANCES, PRESERVATION CASE STUDIES, and SUSTAINABILITY INFORMATION RESOURCES. The main content area is titled "LEED - Sustainability" and contains text about the U.N. World Commission on Development's 1987 report, "Our Common Future", and the intersection of sustainable design and historic preservation. It also mentions that older and historic buildings comprise more than half of the state's building stock.

CA.GOV Office of Historic Preservation  
CALIFORNIA STATE PARKS

State Parks OHP Home What's New Workshops CEQA CHRIS **LEED** THPO Land

Office of Historic Preservation

GREEN PRESERVATION IN THE NEWS »

LEGISLATION, POLICIES, ORDINANCES »

PRESERVATION CASE STUDIES »

SUSTAINABILITY INFORMATION RESOURCES »

### LEED - Sustainability

The accepted definition of sustainability from the U.N. World Commission on Development's 1987 report, "Our Common Future" is that sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The intersection of sustainable design and historic preservation is a key component of this approach.

Older and historic buildings comprise more than half of the state's building stock.



© Dolphin Shirt Company

**CALIFORNIA REPUBLIC**

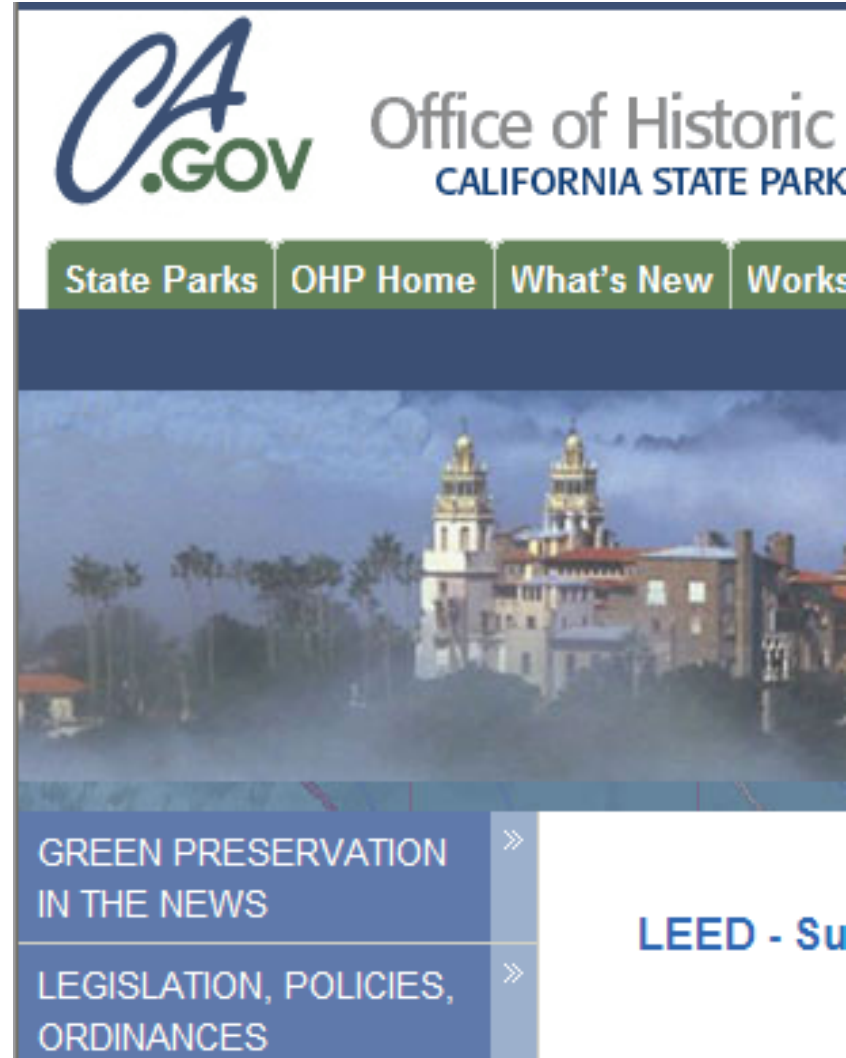
***GO GREEN***





# A State Approach: Sustainability Best Practices

- **Stay current on sustainable mandates in the form of Executive Orders, legislation and Codes in your state.**
  - **Flag language that adversely affects historic preservation**
  - **Suggest language inclusive of historic preservation:**
    - “Waivers granted if the building is on the National Register of Historic Places or eligible for listing in the NR of HP, or the State Register...”
    - “Certified Historic Structures obtaining energy conservation retrofitting shall also conform to the Secretary of the Interior’s Standards for Historic Preservation...”
- **Develop or encourage development and adoption of model green ordinances that are preservation inclusive**





## LEED ND

Changes to the Pilot version coming out for final review this fall, with the final version ready for 2009.

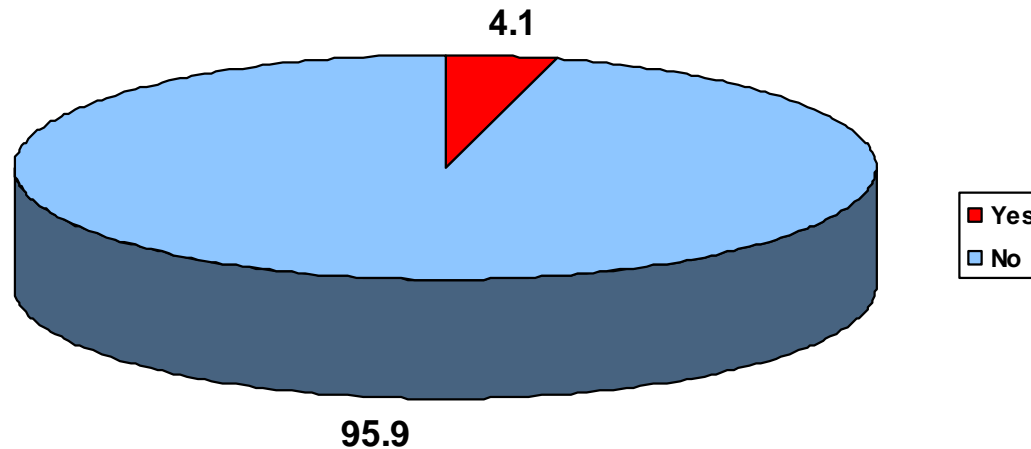


## LEED ND - GIB Credit 5

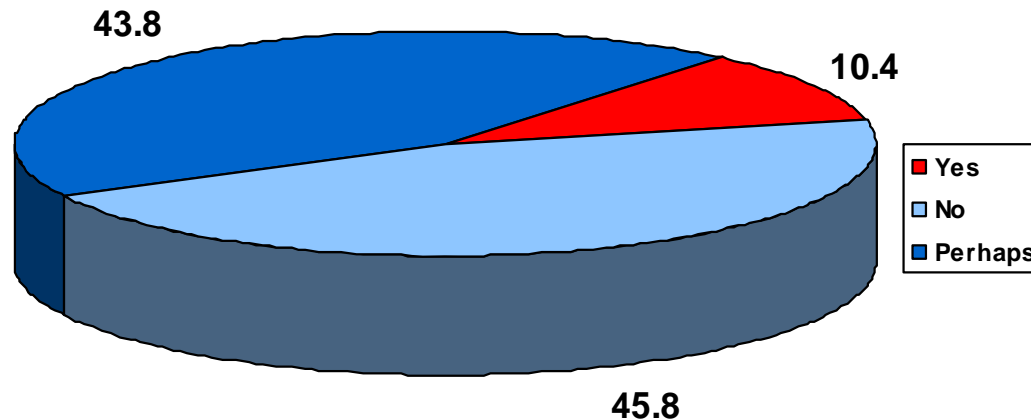
To achieve this point, the **project** must not demolish any **historic building** or portion of a historic building within the **project boundary**, unless approval for such action is granted by the local historic preservation review board.



# NCSHPO Green Preservation Survey

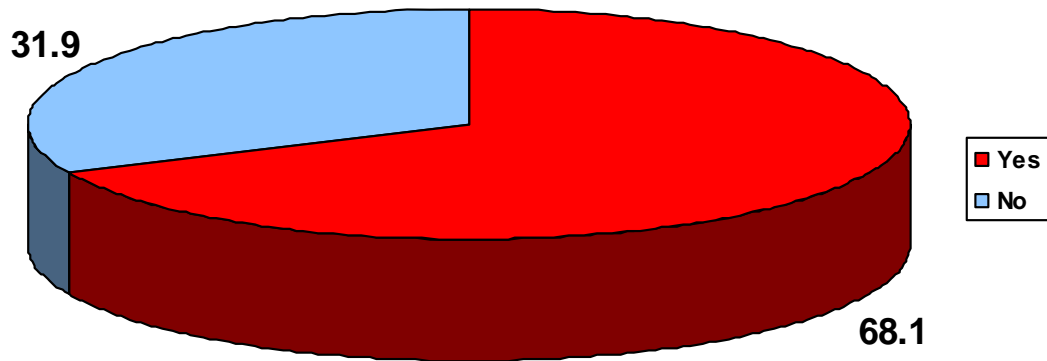


**Do you have a LEED AP (accredited Professional) on staff?**

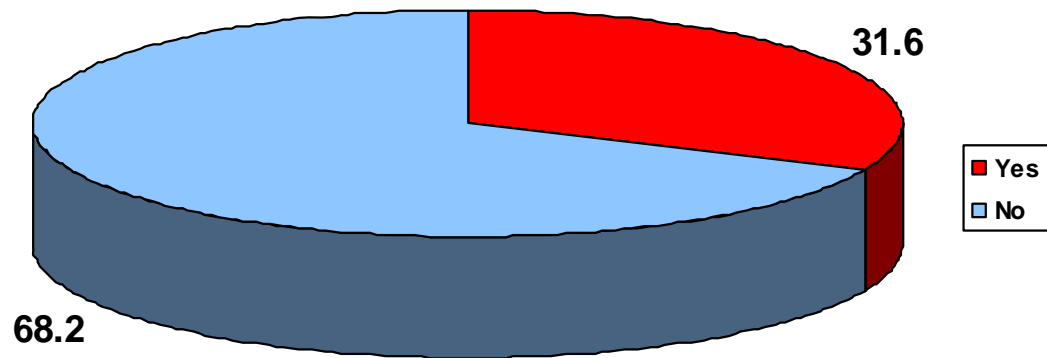


**If no, does your office plan to add a LEED AP within the next two years?**

# NCSHPO Green Preservation Survey



**Has your state adopted the IEBC or other alternative code for historic buildings?**



**Does your state and/or local code authorities exempt historic buildings from energy efficiency requirements?**

Source: Survey Monkey Survey 2/27/2008

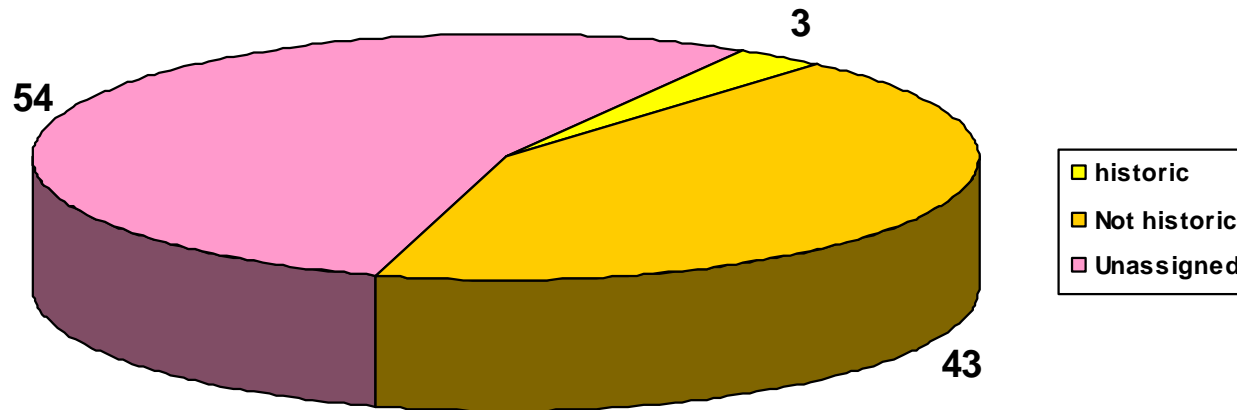


**The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria.**

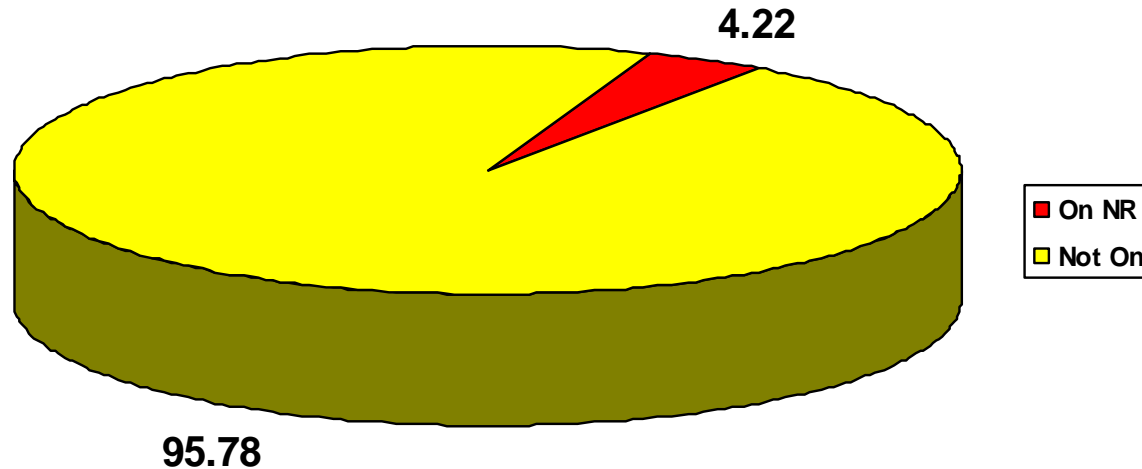
**WHAT IS LEED® AND THE US GREEN BUILDING COUNCIL?**



# LEED Projects Nationally



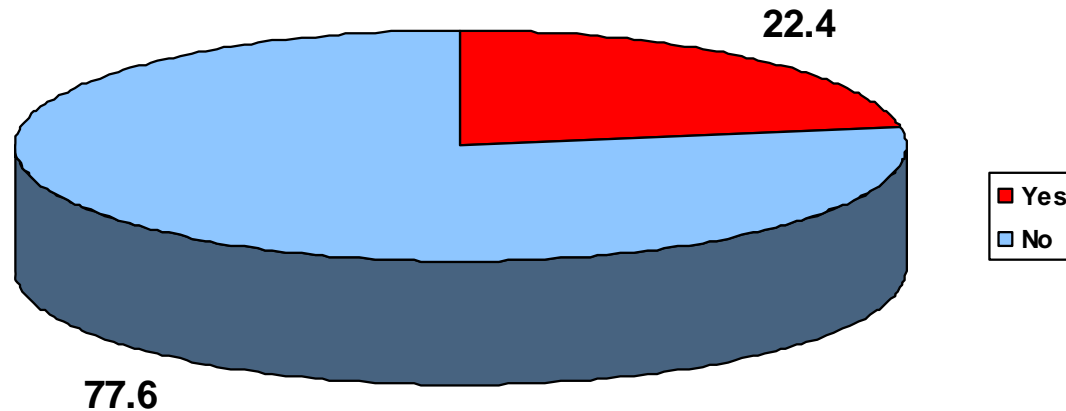
## LEED historic sites



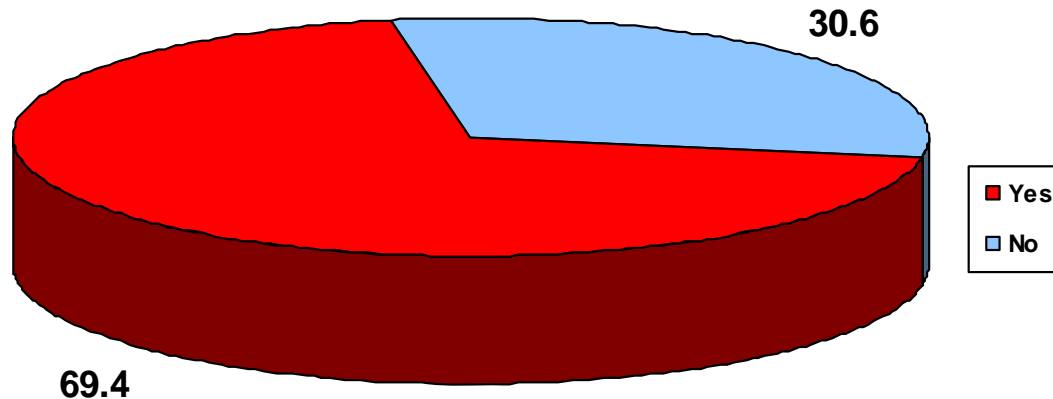
## LEED historic sites on N.R.

Source: USGBC LEED Project List – PUBLIC (2-1-08).xlsx

# NCSHPO Green Preservation Survey

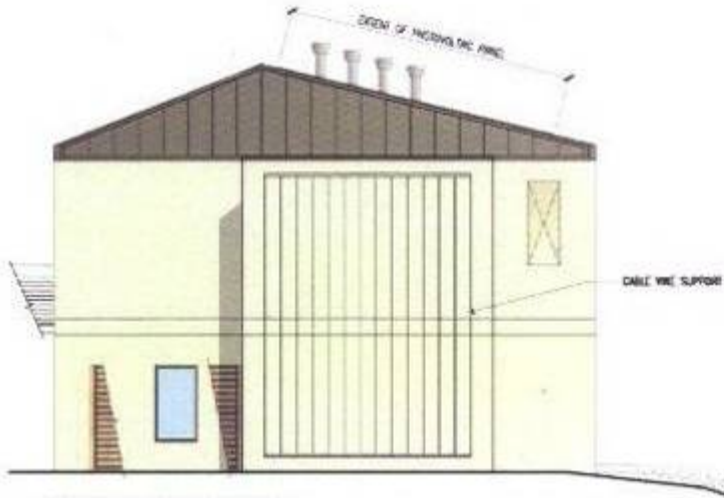


**Does your office web site link or refer to sustainable preservation issues?**



**Has a conflict ever arisen between preservation and sustainability goals in a Section 106, Tax Credit, or other review?**

# Amendment to adhere solar panels to new construction:



TYPICAL WEST ELEVATION, EAST OF CHAPEL



TYPICAL EAST ELEVATION, EAST OF CHAPEL



TYPICAL SOUTH ELEVATION, EAST OF CHAPEL - REGULAR UNITS



TYPICAL SOUTH ELEVATION, EAST OF CHAPEL - SUITE BUILDING



